

DATA VISUALIZATION PROJECT

By

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Data Description

The data was picked from data.gov (<https://catalog.data.gov/dataset>). This dataset catalogues all the complaints made about the financial product across all the states of US. The data originally belongs to CFPB (bureau of consumer financial protection). The Consumer Financial Protection Bureau is a federal agency dedicated to ensuring that markets for consumer financial products and services are fair, transparent, and competitive. To support this mission, technologists at the CFPB build external resources for the public and internal tools to help the Bureau run more efficiently. (CFPB Open Tech, n.d.). Although the file contains data since 2011, I have only taken the very recent data for my analysing purposes. All the data belongs to the year 2016. The total number of rows are about 27714. Every week thousands of consumer complaint about the financial services about companies. Complaints are listed in the database after the company responds or after they had the complaint for 15 calendar days whichever comes first . CFPB doesn't verify all the facts which has been alleged in the grievances but they take steps to confirm a commercial relationship between the consumer and the company, the data is refreshed nightly. The consumer complaint database contains complaints that CFPB has received complaints like

- Bank accounts or services
- Consumer loans
- Credit cards
- Credit reporting
- Debt collection
- Money transfers
- Mortgages
- Prepaid cards
- Payday loans
- Student loans (private student loans and federal student loan servicing)
- Virtual currency

Description of each field

Date Received: date on which the company received the problem.

Product: it is the type of the product that the consumer complained about

Sub-product: It is the type of the sub-product that consumer mentioned while describing the product that they are facing problem with

Issues: this is a categorical value and mentions the issue that the costumer is facing relating to the product. It mentions the actual problem. This a categorical value.

Company: company from where the problem originated

State: the state form where the complaint originated

ZIP code: zip code of the area from where the issue arose

Submitted Via: the mode through which the complaint was submitted is described here

Company response to the consumer: response given by the company

Timely response: this tells if the response for timely

Consumer disputed: if the consumer disputed the response

Complaint ID: it is the primary and unique ID based on which the complaints are identified

Data cleansing operations

The data was mostly clean and well arranged, however I went ahead and removed the fields which was not significant to the analysis that I want to do. I also removed the fields which was null and imputed the fields which I cannot avoid removing

Types of Analytical questions that can be answered with this data

The data records the customer complaints regarding the financial products offered by different banks of the country. This data can be used to improve the financial products of the company. The firms can understand what exactly the customer is looking for and based on their complaints the company can decide on improving the product and make it more customer friendly. The company can real time improvement survey based on these complaints. These data set also shows which company is working more efficiently than the others. The information provided from this data can be used to improve the performance of the branches located in all the state. This information can be utilized by the company as a performance metric for their product. The company can use this data to access the popularity of their respective product across different states and specific to the Zip code.

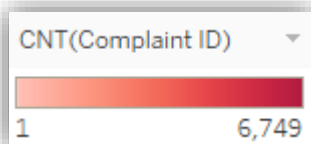
This data can be used by the company to understand exactly what kind of issue is occurring for their product for example in the product like credit reporting the most commonly occurring problem with this product is “incorrect information on credit report”. The firm has identified the problem which is beginning of finding a solution. The company can then exactly what went wrong with the system that lead to this problem. Once they figure out the issue they can go ahead and solve it by either finding the issue with the system or improving the process by which they identify the problem. The other areas which the company can understand and improve is company’s timely response to the customer. It must understand if the problem was addressed and if it was then what was the way that it was dealt with. There needs to be a proper process that needs to be followed and if the problem was not resolved according to the satisfaction of the customer then something sizable should be done to improve the process and build a system that can understand the

problem of the customer better and resolve it in a timely fashion. The other area where the companies will benefit tremendously is in analysing the problem areas where the other companies are suffering. If it analyses the problem carefully it can find the opportunity in these problems. They can then ask their development team to build a product exclusively targeting the customers which are unhappy with the problems of the other bank. It must analyse the type of problem, the steps taken to confront the issue and the solution that was undertaken to resolve the issue. If the solution is made and it was up to the level of satisfaction of the customer. The organization must include the various level of help that it can get from the individuals in confronting the problem at hand and resolving it to get a proper solution which will fit everyone. The company must have a proper way of resolving the issue. This document can also be used as a performance metric as the data is collected year after year and the company can use its result as a sort of a performance metric to improve their product and services and help the company for a better growth in the long term. The other area where this report will prove to a gem is for the customers. The customer segment can analyse this report before approaching the banks to buy a product. If this data is presented in an orderly fashion to the prospective customers of the product CFPB can develop lot of awareness among the consumer. As seen from the dataset we have various fields in the dataset which can serve useful purpose e.g. we can understand which company is performing better in which state and which zip code. If the company is more efficient in a area, the customer can then decide to invest in that company also we can notice that timely answering the query is also a concern here. If the company can provide a timely resolution of the problem this will help in making the decision process easier for the individual in buying the product for a longer time. The data also provides a kind of sense of the customer's sentiment about the prevailing sentiment. If more numbers of problem are

solved on time customer will get the right idea about which company to further invest in the future. Shareholder can also predict the future of the company if there are many more negative response from the customers. Shareholders can predict the trends well in advance before the actual happening of the event. This data set will help in analysing the most popular trends among the customer, a more popular trend will help in making a better investment

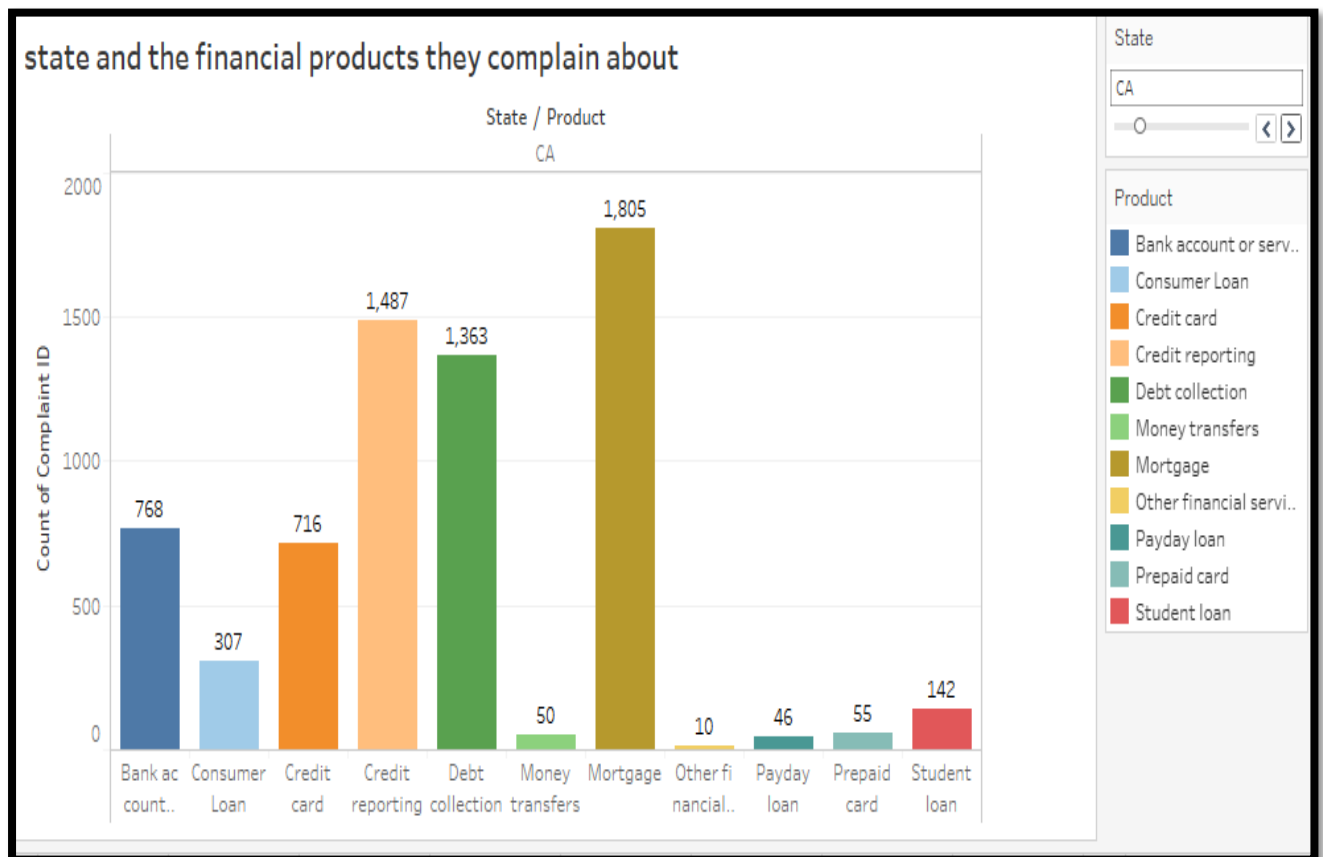
The final set of audiences that it will help is technology consultants. Looking at the trends we will see that a lot of company is facing similar problems therefore a technology firm can step in to try to find a viable solution for this trouble. For example, we see that lot of company has problem with debt collection and credit reporting hence these firms can do a detailed analysis that what is exactly going wrong and once they find a solution which can reduce this problem by even 20%, they can come up with a product which will be useful by one and all. Consultant can also provide products to these financial institutions in dealing with their problem better as we see there are many problems whose resolutions cannot be provided instantly therefore these companies can pitch in and help the financial firms in dealing with their problem. The benefit taken by applying these knowledges can have a large-scale impact on the marketing trends as the whole product can be marketed on the improvement of the service and help the company function better in a more conducive environment.

1)



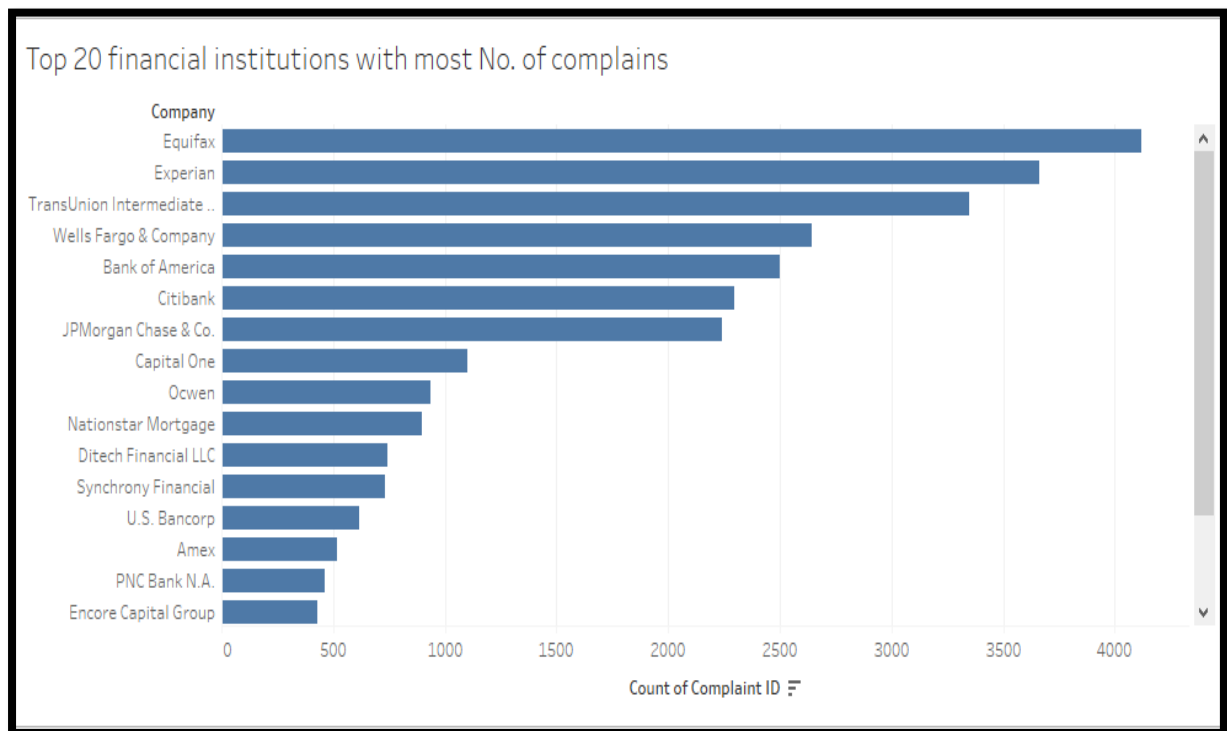
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2)



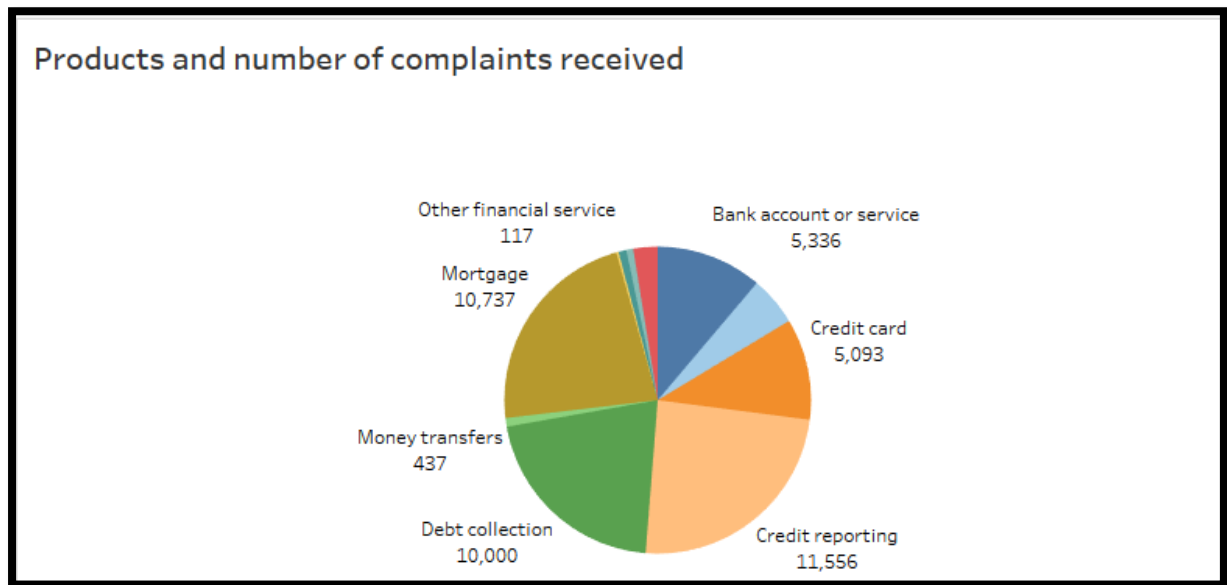
This visualization shows the various states and the financial product which they complain about. It also shows the count of each complaint. In above visualization, (Free Training Videos, n.d.) we can see that California mostly makes complaint about mortgages

3)



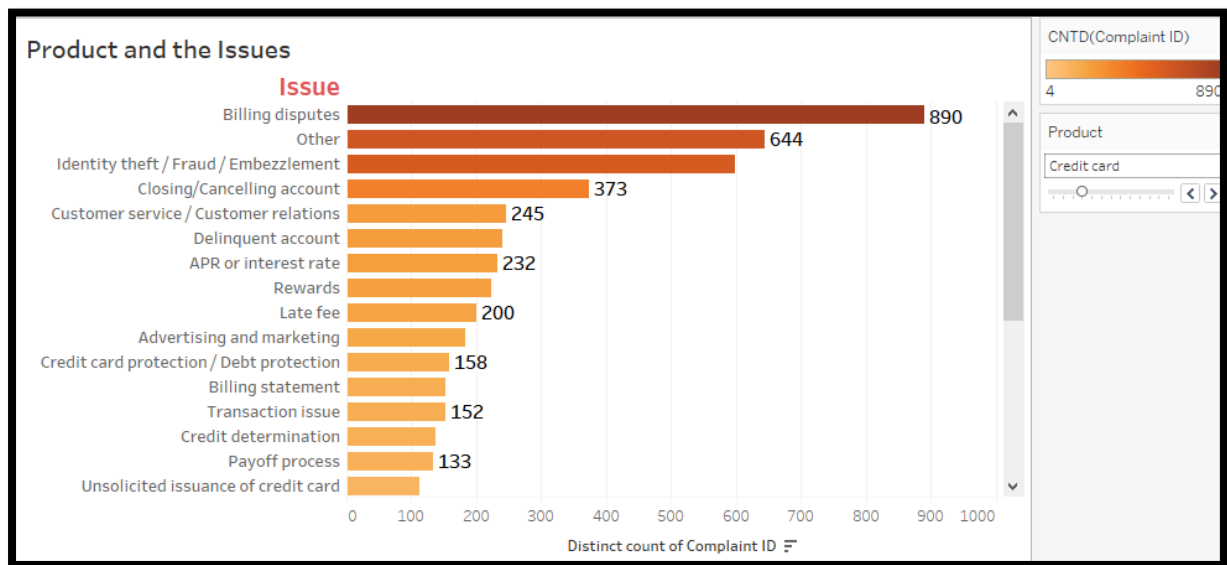
The above visualization shows the top 20 financial institutions with most number of complaints

4)



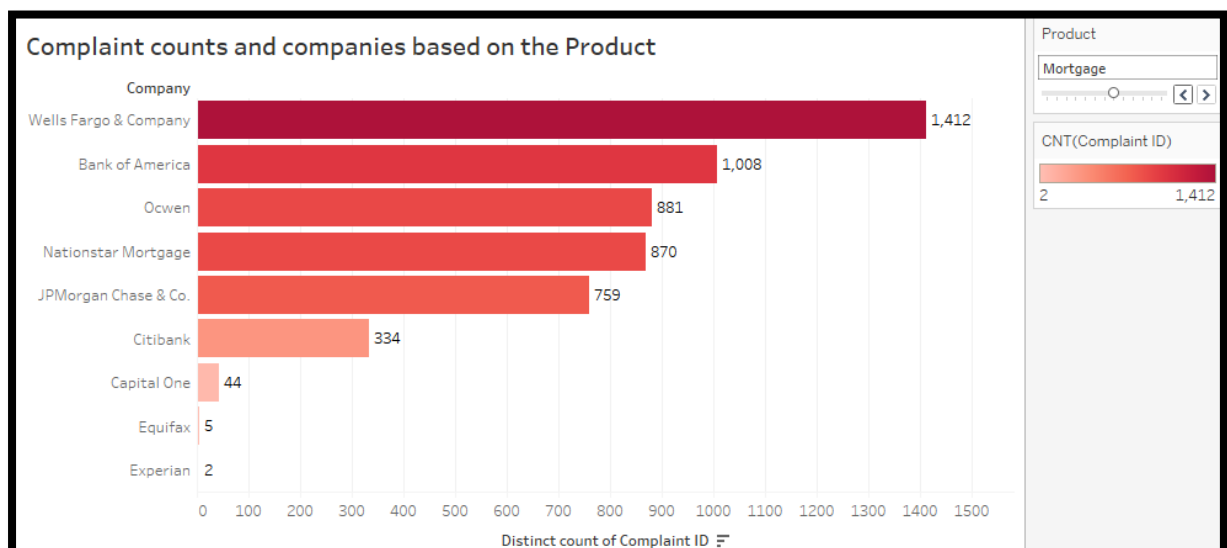
The above visualization shows the various financial products and number of complaints received for each

5)



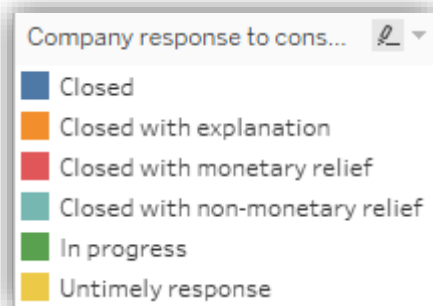
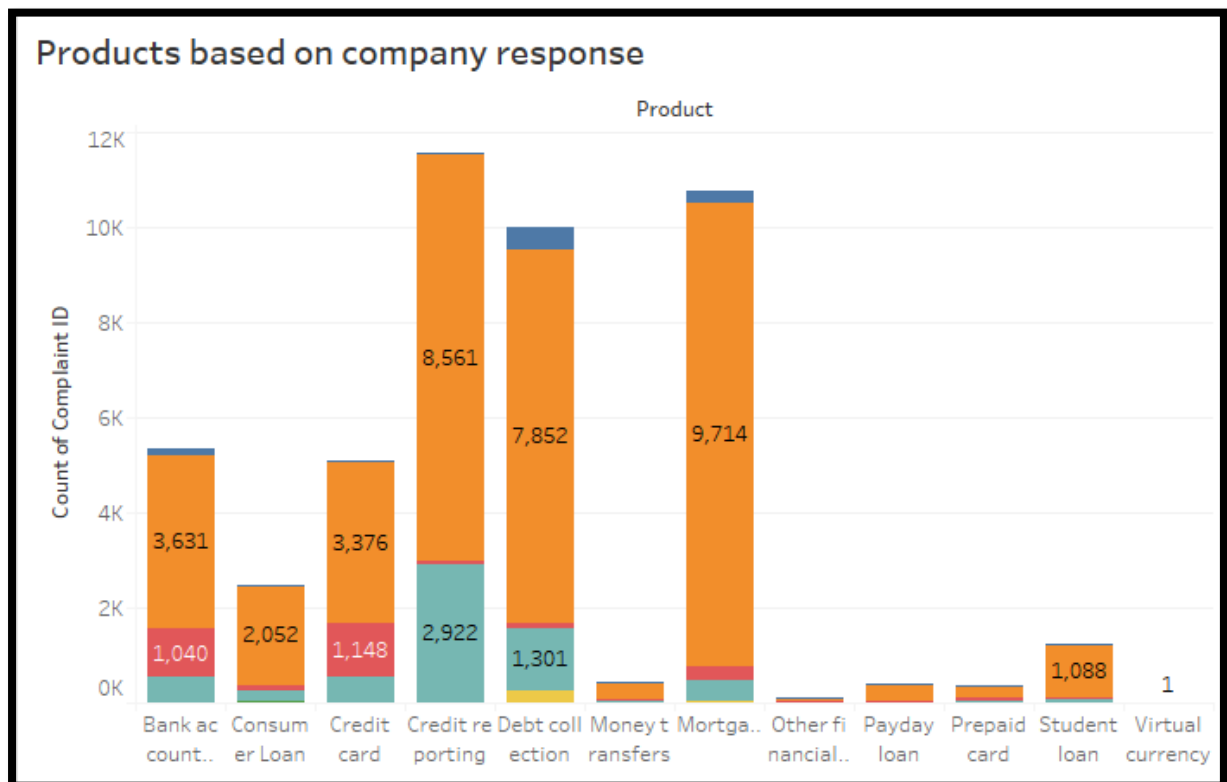
The above visualization talks each product and type of issues that has been encountered for each product. We see in the above visualization that in credit card mostly billing dispute arise and others are shown in descending order

6)



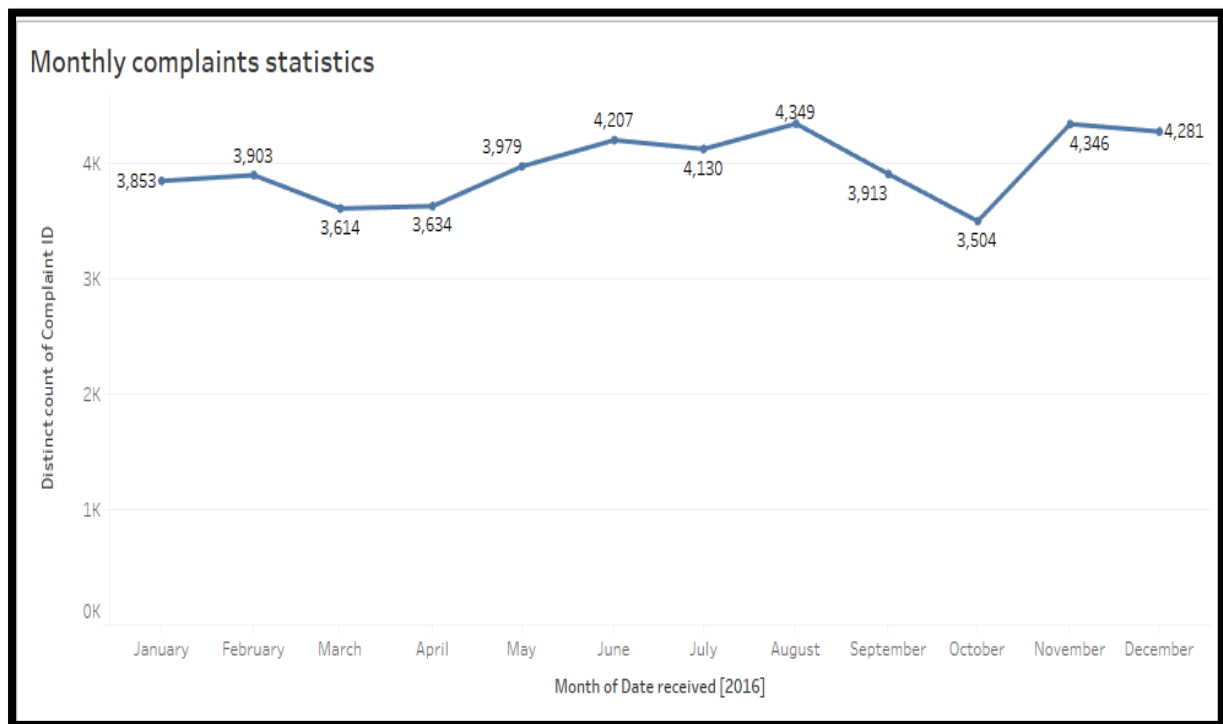
Here we see products and the number of complaints from each firm. We notice that for “mortgage” product the maximum number of complaints are from wells Fargo

7)



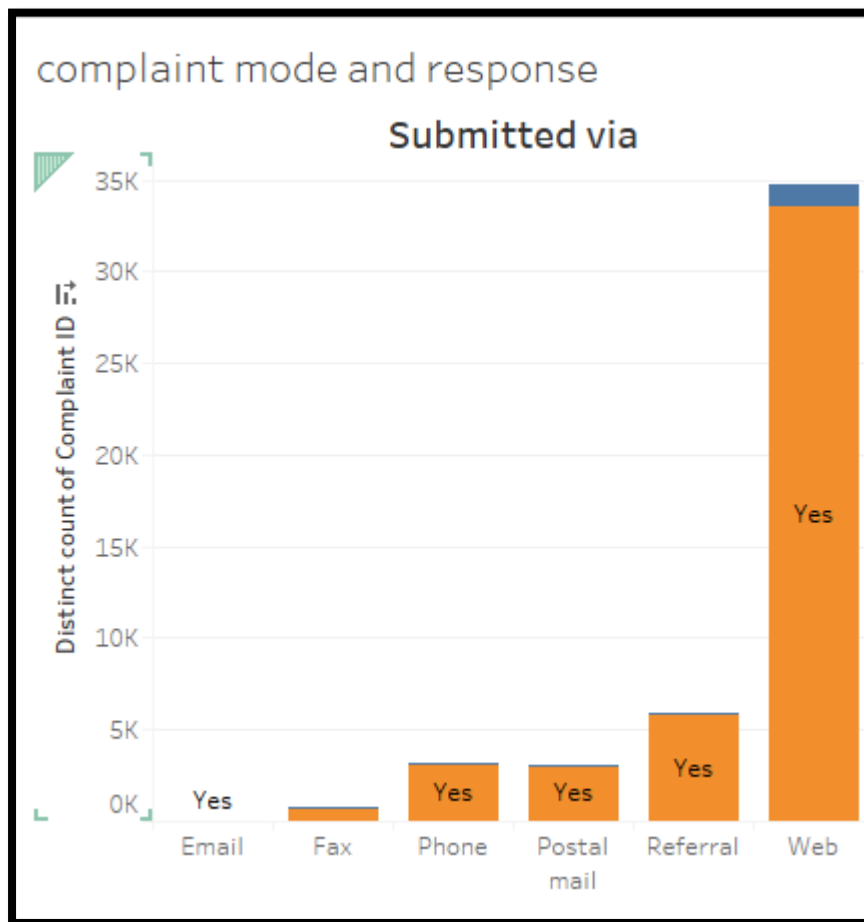
In above visualization, we see the products and the type of the response given by the company. We see that in the case of the credit card many transitions were closed with monetary relief

8)



In this visualization, we see the monthly complaint statistics for the year 2016. We see that in October comparatively lesser number of complaints were received.

9)



Timely response?

☒ No

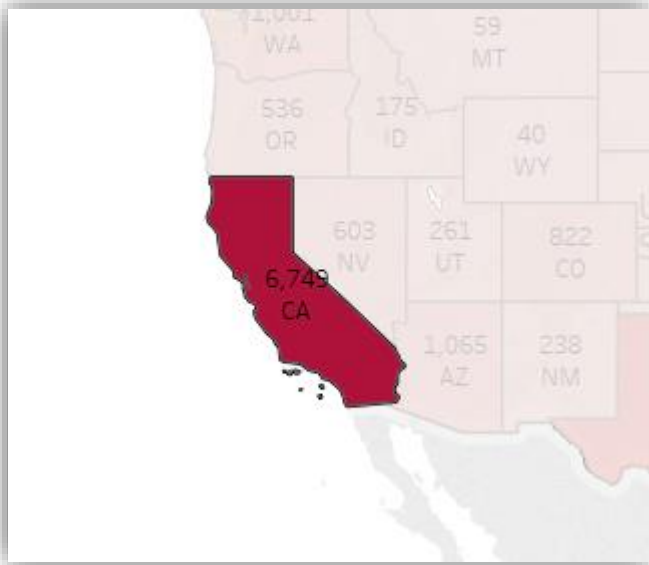
☒ Yes

Here we see the mode of submission of complaints and if timely response was done for it

5 Analytical questions that can be answered with the visualizations

Q1> which state has the more number of complaints origin and how many complaints did they make in 2016?

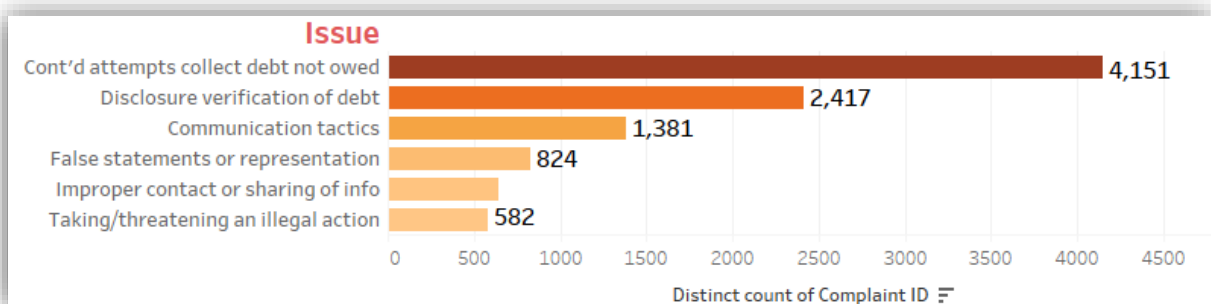
Ans> This question can be found in **visualization 1**. (California-6749)



Q2> What kind of Issues were received for each financial product and how many in 2016?

Ans> This question can be answered by **visualization 5**

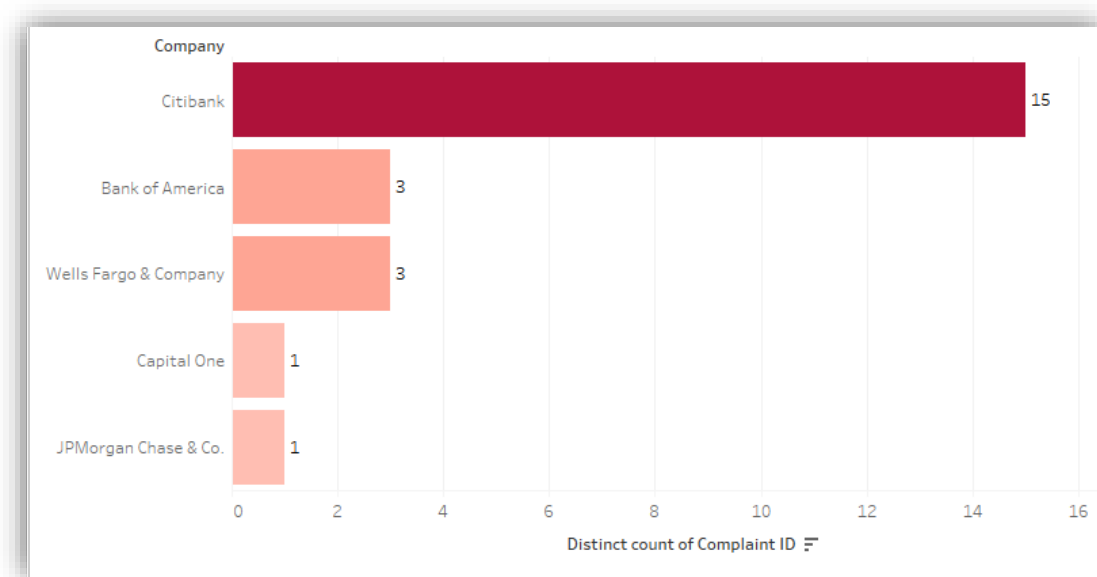
For example: for debt collection, these were the issues



Q3> For each financial product which company had the highest number of complaints and how many in 2016?

Ans> This question can be answered by **visualization 6** with the help of the filter for choosing each product

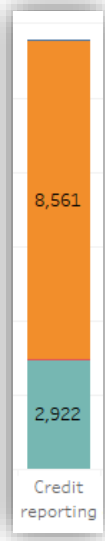
For example: for prepaid card, these were the companies



Q4> what kind of the response was made for each financial product by the firms in 2016?

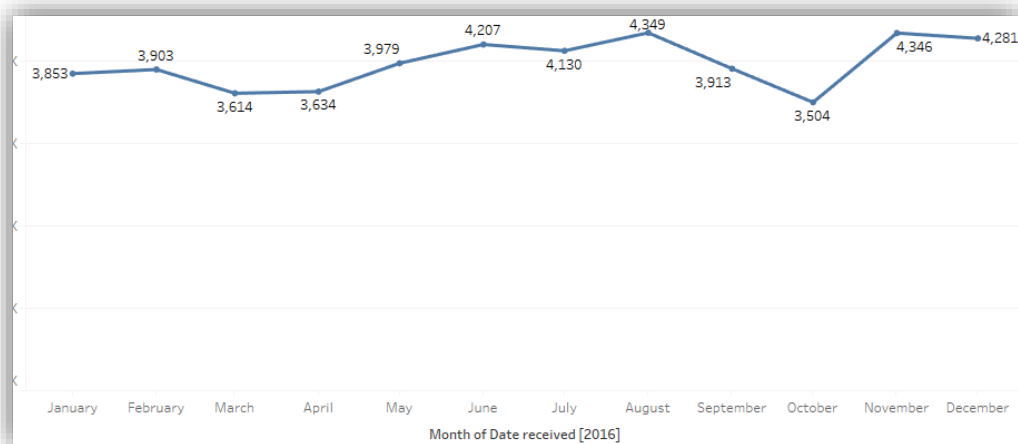
Ans> This question can be conveniently answered by **visualization 7**

For example: for credit reporting 8561 was closed with monetary relief and 2922 was closed with non-monetary relief as shown below



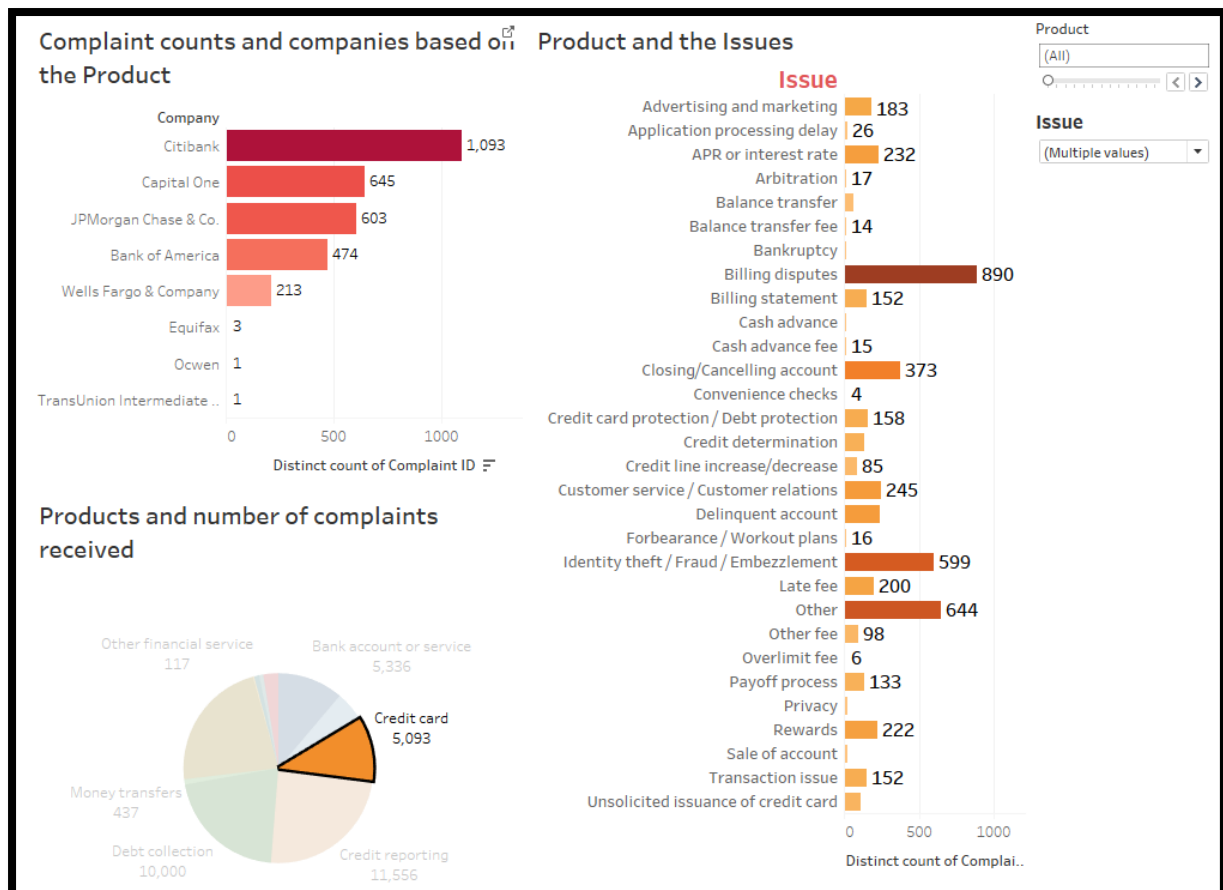
Q5> which month in 2016 had the most and the least number of complaints for financial products?

Ans> this question can be answered by **visualization 8** (most number of complaints: Aug-4349, least number of complaints: Oct-3504)



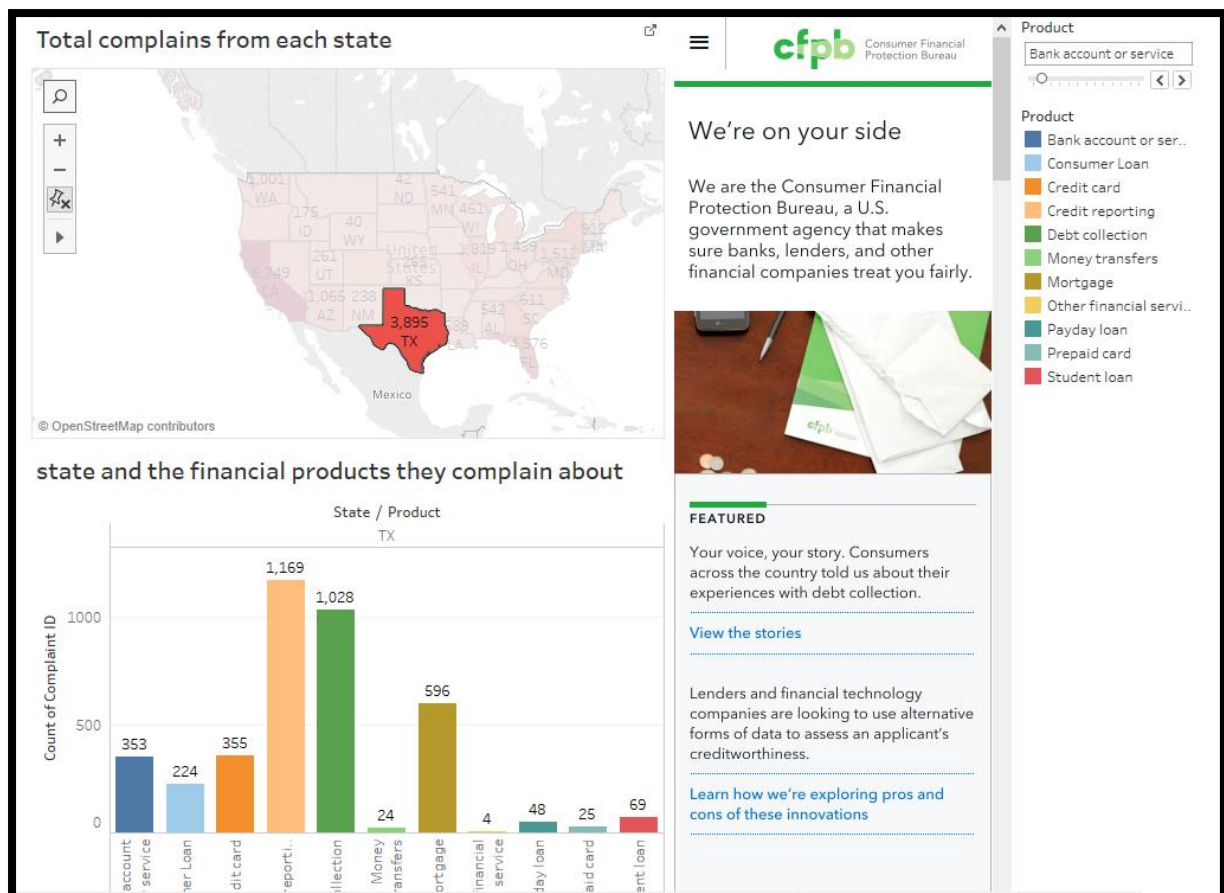
Dashboards

1)



In this dashboard when we select the product type we can immediately see the companies that the complaints are originating from and number of complaints from each company we can also see the types of issues for each product and see the most occurring issue for each financial product in 2016. Since this is an interactive dashboard we can find similar information for each financial product

2)



In this dashboard when we select the state from the interactive filled map we get all the information about the product about which that state is complaining and the count of each complaint for each product. Since this is an interactive dashboard we can find similar information about all the states. We also have a link to the CFPB website where we can get quick access to all the information about this dataset

References

(n.d.). Retrieved from CFPB Open Tech: <http://cfpb.github.io/>

Free Training Videos. (n.d.). Retrieved from Tableau.com:

<https://www.tableau.com/learn/training#visual-analytics>